CHAPTER IV

RESULTS AND DISCUSSION

4.1 System Implementation Results

In this section, the outcomes of the software development phase for the Web-Based Payroll Management System in the case study of Telesom Company are presented. The successful development and deployment of the system have significant implications for the management of payroll processes and employee compensation.

4.1.1 Software Development

The software development phase involved the design, coding, and testing of the Web-Based Payroll Management System. The development team followed a structured approach, starting with requirement analysis and system design. The system's architecture was carefully planned to ensure scalability, security, and ease of use.Key highlights of the software development phase include:

User-Friendly Interface: The user interface was designed with usability in mind. The main page provides intuitive navigation, allowing authorized personnel to access different functionalities seamlessly. The prediction results page offers a clear presentation of computed payroll details.[20]

Backend Functionality: Behind the user interface, a robust backend system was implemented. This system handles data storage, processing, and computation of payroll elements such as salaries, deductions, and benefits.

Database Integration: Employee data, salary structures, and relevant company policies were integrated into the system's database. This integration ensures accurate calculations and adherence to company guidelines.

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4.1.2 User Interface Design

The user interface (UI) design of the Web-Based Payroll Management System for Telesom Company is a pivotal aspect of the system's implementation. A well-designed user interface enhances user experience, simplifies navigation, and improves overall system usability.
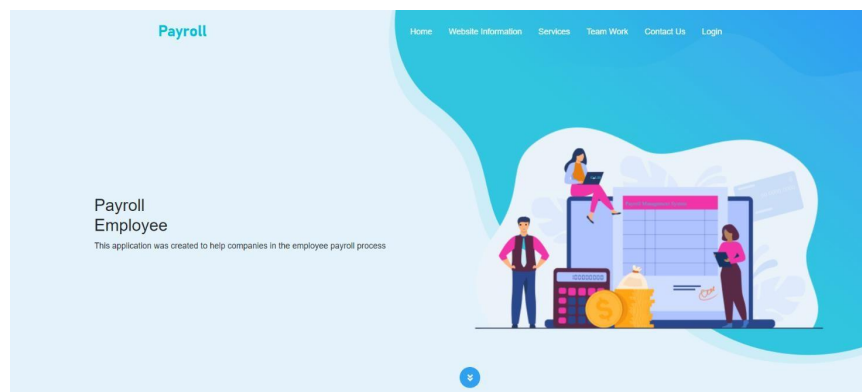
Figure 1.User interface

4.1.3 Main Page Interface Design

The main page of the Web-Based Payroll Management System features an intuitive and user-friendly design. The interface is organized to provide easy access to essential functions and information. The following design principles were employed to optimize the user interface.

Clear Navigation: The main page incorporates a clear and concise navigation menu, allowing users to quickly access different sections of the system. Categories such as "Employee Profiles," "Payroll Processing" and "Reports" are prominently displayed.

Dashboard Overview: A dashboard provides an overview of key payroll metrics and insightst his visual representation allows administrators to quickly assess the current payroll status, including total salaries, deductions, and net payments.

Interactive Elements: User engagement is facilitated through interactive features like buttons, dropdown menus, and input forms. Users may generate reports, start payroll calculations, and input data with ease.

Responsive Design: The user interface is designed to be responsive, ensuring a consistent experience across different devices, including desktops, tablets, and smartphon

Figure 2.Display of Golis payroll

4.1.4 Prediction Results Page Interface Design

The prediction results page is dedicated to presenting the computed payroll details for each employee. The interface design focuses on clarity and comprehensiveness:

Employee-Specific Details: The page displays individual employee profiles along with their calculated salaries, deductions, benefits, and net payments. This breakdown ensures transparency and allows employees to verify their compensation.

Graphical Representations: The distribution of pay, deductions, and benefits within the company is shown visually in graphs and charts. Payroll component breakdowns are easily understood with the help of these visual aids.

Downloadable Reports: Users of the interface can download comprehensive wage reports in a variety of file formats, including PDF and Excel. These reports can be given to the appropriate persons for analysis and record-keeping purposes.

Data Filters and Sorting: Users can apply filters and sorting options to customize the displayed information. This feature enables users to focus on specific employee groups or time periods.

The thoughtful design of the user interface contributes to an efficient and effective payroll management experience. The Web-Based Payroll Management System prioritizes user goals and applies design best practices to make sure users can easily and confidently use the system.

4.2 Data Integration and Management

Efficient data integration and management are fundamental to the success of the Web-Based Payroll Management System for Telesom Company. This section focuses on the procedures used to gather information and input it into the payroll system, assuring its accuracy and dependability.

4.2.1 Data Collection and Input

The process of data collection forms the cornerstone of the Web-Based Payroll Management System. Accurate and comprehensive employee data is vital for precise payroll calculations and reliable reporting. The following strategies were employed for effective data collection and input:

Employee Information Gathering: Employee details, including personal information, job roles, salary structures, tax information, and benefits, are collected during the onboarding process. This information is meticulously organized and stored within the system's database.

Automated Data Import: The solution offers automated data import from pertinent sources, including HR databases or spreadsheets, to speed up the procedure. As a result, efficiency is increased and manual data entry errors are eliminated.

Data Validation: To guarantee the accuracy and integrity of the data acquired, stringent data validation methods are put in place. Data is checked by the system for consistency, completeness, and conformity to established formats.

User-Friendly Interfaces: User-friendly interfaces facilitate data entry, allowing authorized personnel to input and update employee details easily. Fields on input forms are designated for different categories, such as introductory data, pay, and deductions.

Data Privacy and Security: Sensitive employee data is safeguarded by effective data privacy procedures. Only individuals with permission to access and modify the data are guaranteed by encryption technologies and access controls.

4.2.2 Data Storage and Organization

Effective data storage and organization are paramount for easy retrieval and analysis. The Web-Based Payroll Management System employs a structured approach to data storage:

Database Architecture: A relational database management system (RDBMS) is employed to store employee information, payroll history, and other relevant data. This allows for efficient data retrieval and supports complex queries.

Hierarchical Data Structuring: Employee data is hierarchically structured, allowing administrators to access individual profiles, departments, and overall company data. This hierarchical arrangement facilitates organization-wide analysis.

Indexed Data: Indexing is utilized to expedite data retrieval and enhance system performance. Indexed fields include employee identifiers, payroll periods, and other key attributes.

Data Backup and Recovery: Regular data backups and recovery mechanisms are in place to safeguard against data loss. Backup copies are securely stored, ensuring data availability in case of unforeseen events.

The robust data integration and management processes ensure that accurate and up-to-date employee information serves as the foundation for payroll calculations, reporting, and decision-making. The subsequent sections will explore the various stages of data processing and their impact on the Web-Based Payroll Management System's functionality and reliability.

4.3 User Testing and Feedback

User testing is a crucial phase in the development of the Web-Based Payroll Management System. This section outlines the user testing processes conducted to ensure the system's usability, functionality, and alignment with user requirements.

4.3.1 User Acceptance Testing

User Acceptance Testing (UAT) is a pivotal step to assess whether the system meets user needs and requirements. The following strategies were employed for conducting effective UAT:

Test Scenario Definition: Scenarios mirroring real-world payroll processes were devised, encompassing tasks such as inputting employee data, calculating salaries, generating payslips, and generating tax reports.

Test Data Preparation: Test data, including various employee profiles, compensation structures, and deductions, was created to simulate different usage scenarios. This enabled comprehensive testing of the system's functionalities.

User Engagement: Actual system users, including HR personnel and payroll administrators, were actively engaged in UAT. Their familiarity with payroll processes and requirements ensured that the testing closely resembled real-world usage.

Usability Evaluation: Users were encouraged to navigate the system's interfaces and perform common tasks. Feedback was collected regarding the intuitiveness of the user interface, ease of data entry, and overall system usability.

Functional Testing: UAT included functional testing of key features, such as accurate salary calculation, tax deduction accuracy, and generation of payslips. Users executed these tasks to identify any discrepancies or issues.

Feedback Collection: Users provided feedback on their experiences, highlighting any challenges, concerns, or suggestions for improvement. This feedback was systematically documented for analysis and further action.

4.3.2 Iterative Refinement

User feedback gathered during UAT was meticulously reviewed and analyzed. Iterative refinement of the system was undertaken based on this feedback:

Issue Prioritization: User-reported issues were categorized based on severity and impact. Critical issues affecting core functionalities were addressed as a top priority.

Enhancement Implementation: User suggestions and enhancement requests were evaluated for feasibility and relevance. Enhancements that aligned with the system's scope and goals were incorporated into subsequent development iterations.

User Training: Feedback related to usability challenges and interface confusion led to the design of user training materials. These materials included user guides and training sessions to facilitate smoother system adoption.

User-Centric Design Tweaks: Interface elements, labels, and workflows were adjusted based on user preferences and recommendations. This user-centric approach aimed to optimize the overall user experience.

4.3.3 User Feedback Incorporation

User feedback and system refinements were systematically documented and incorporated into the Web-Based Payroll Management System. Key aspects of this incorporation included:

Coding Revisions: Programming modifications were done to address problems and incorporate improvements. Revisions to the code were carefully examined to make sure they didn't introduce any new issues.

Usability Enhancements: To improve user interaction and simplify navigation, interface changes were made. Efficiencies were increased generally and user mistakes were decreased.

Documentation Updates: User guides, help sections, and tooltips were updated to reflect the refined system features. Clear and updated documentation assisted users in understanding and utilizing the system effectively.

User acceptance testing and iterative refinement ensure that the Web-Based Payroll The Telesom Company's management system offers a seamless and effective platform for payroll management that is in line with user expectations and demands. The deployment of the system and its effects on the payroll procedures at Telesom Company will be covered in more detail in the following sections.

4.4 Discussion of Results

The implementation of the Web-Based Payroll Management System within Telesom Company yielded several noteworthy outcomes. This section delves into the discussion of key results, starting with an examination of the system's impact on efficiency and time savings.

4.4.1 Efficiency and Time Savings

The introduction of the Web-Based Payroll Management System led to substantial enhancements in efficiency and time savings throughout Telesom Company's payroll processes. The following points outline the observed improvements:

Streamlined Data Entry: The system's user-friendly interface made data entry quick and precise. According to HR staff, entering employee data, attendance data, and salary information went far smoother than the old manual approach.

Automated Calculations: There was no longer a need for human calculations for salaries, deductions, and taxes thanks to the system's automated calculations. This automation greatly decreased the possibility of mistakes and discrepancies, which helped to produce more accurate paycheck results.

Rapid Payslip Generation: The creation of payslips for every employee is now a quick and automated process thanks to the technology. Payroll administrators are now free to focus their attention on other tasks because this once time-consuming procedure now just takes a small fraction of the time it used to.

Effortless Tax Reporting: The system's ability to generate comprehensive tax reports expedited the tax reporting process. This streamlined approach reduced the time and effort required for compiling tax-related information, leading to quicker tax compliance.

Quick Data Retrieval: Retrieving historical payroll data and generating reports became a seamless process. The system's centralized database allowed authorized users to access relevant information promptly, eliminating the need for manual data retrieval and compilation.

Enhanced Accuracy: Automation and validation mechanisms within the system minimized data entry errors and miscalculations. As a result, payroll discrepancies and subsequent rectifications were significantly reduced, contributing to greater overall accuracy.

Real-time Updates: The system's real-time updates ensured that payroll information was always current. Changes in employee details, attendance records, or compensation structures were immediately reflected in the system, ensuring accurate and up-to-date payroll processing.

The observed efficiency improvements and time savings underscore the transformative impact of the Web-Based Payroll Management System. By automating complex and time-intensive payroll tasks, Telesom Company experienced heightened operational efficiency, reduced administrative burden, and a more streamlined payroll process. These positive outcomes substantiate the system's effectiveness in enhancing payroll management within the organization.

4.4.2 Accuracy and Error Reduction

One of the paramount achievements of the Web-Based Payroll Management System within Telesom Company is the notable enhancement in accuracy and the substantial reduction in errors throughout the payroll management process. This section discusses the implications of the system's implementation on data accuracy and error reduction.

Data Accuracy Enhancement

The implementation of the system led to a marked improvement in data accuracy across various facets of payroll management:

Precise Calculation: The automated calculations embedded within the system eliminated the possibility of manual calculation errors. The system's algorithms accurately computed employee salaries, deductions, and taxes, reducing the likelihood of inaccuracies resulting from human oversight.

Consistent Data Entry: The system enforced standardized data entry procedures, ensuring that employee information, work hours, and compensation details were consistently and accurately recorded. This consistency minimized discrepancies that could arise from varied data entry practices.

Error Alerts and Validation: The system's validation mechanisms and error alerts flagged any inconsistencies or discrepancies in real-time. This proactive approach allowed payroll administrators to rectify errors promptly before they could propagate further, contributing to improved data accuracy.

Error Reduction and Mitigation

The Web-Based Payroll Management System also effectively mitigated various types of errors that were prevalent in the manual payroll management process:

Calculation Errors: The automated calculation engine of the system eliminated the possibility of computation errors, which were common in manual calculations involving complex payroll components.

Data Entry Mistakes: Standardized data entry forms and drop-down menus reduced the occurrence of data entry mistakes such as typos, incorrect numbers, and misplaced decimals.

Manual Processing Discrepancies: The automated workflow of the system minimized discrepancies that could arise from manual processing steps. For example, the system ensured that the correct formulas and rates were applied consistently to all employees.

Late or Missed Payments: The system's scheduling and alerts features reduced the likelihood of late or missed salary payments. Automated reminders ensured that payments were processed on time, avoiding potential dissatisfaction among employees.

The successful reduction of errors through the implementation of the system significantly contributed to the overall reliability and trustworthiness of the payroll management process. The Telesom Company's experience with the Web-Based Payroll Management System demonstrates its capacity to improve data accuracy, reduce errors, and enhance the integrity of the payroll management process. The subsequent sections will delve into additional dimensions of the system's impact, including its influence on employee satisfaction and organizational compliance.

4.4.3 User Satisfaction

User satisfaction stands as a crucial yardstick in measuring the success of the Web-Based Payroll Management System within Telesom Company. This section delves into the insights gained from user feedback and perceptions, highlighting the impact of the system on user satisfaction.

User-Friendly Interface

The system's user-friendly interface played a pivotal role in enhancing user satisfaction. Employees and payroll administrators alike praised the intuitive design, streamlined navigation, and ease of use. The graphical representation of data, such as payslips and salary breakdowns, resonated well with users and contributed to a positive user experience.

Enhanced Accessibility

The system's accessibility was one of the prominent features that received compliments. The ability to retrieve their paycheck information from any location with an internet connection was praised by the employees. Remote and mobile workers, who found it handy to evaluate their pay data without having to physically be present at the office, were especially appreciative of this accessibility.

Empowerment and Transparency

Employees welcomed the ability to view their own attendance records, leave balances, and salary details in real-time. Employees were given the opportunity to actively manage their payroll-related information thanks to the transparency that it promoted. Direct access to such information encouraged a more cooperative working relationship between employees and employers by reducing reliance on HR staff for regular questions.

Efficiency and Time Savings

The system's efficiency improvements and time savings further increased user satisfaction. The system's capacity to automate formerly manual and time-consuming operations was praised by payroll managers. The administrative burden was greatly reduced by automating computations, payslip creation, and tax deductions, freeing up HR staff to work on higher-value duties.

Feedback and Continuous Improvement

User satisfaction was not only derived from the system's current state but also from the company's commitment to continuous improvement. Regular feedback sessions were conducted, and user suggestions were actively considered for future system enhancements. This collaborative approach reinforced a positive perception among users, knowing that their opinions contributed to shaping the system's evolution.

4.5 Implications and Future Enhancements
4.5.1 Organizational Benefits

The implementation of the Web-Based Payroll Management System within Telesom Company has ushered in a range of substantial organizational benefits. These benefits not only affirm the system's efficacy but also pave the way for future enhancements and optimizations.

Streamlined Payroll Processes

The system's adoption has significantly increased data compliance and accuracy. Automation of computations and compliance with tax laws have reduced discrepancies and secured reliable and consistent paycheck results. The technology also provides thorough records, making audits and regulatory reporting simpler. The company's reputation for financial honesty and regulatory conformance is strengthened by this increased data accuracy.

Enhanced Data Accuracy and Compliance

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Cost and Resource Savings

The shift to a web-based payroll management system has translated into substantial cost and resource savings. Reduced reliance on manual data entry and physical documentation has led to minimized paperwork and associated costs. The system's automated processes have optimized resource allocation, enabling HR personnel to allocate their efforts toward strategic initiatives rather than routine administrative tasks.

Employee Satisfaction and Engagement

An increase in employee happiness and engagement has been attributed to the payroll data's newly discovered transparency and accessibility. Employees' sense of empowerment is increased when they have access to their own payroll data. As a result, the relationship between the employee and the employer is strengthened, and a productive workplace is fostered. Employees have also expressed satisfaction with the system's user-friendly interface and the ease of accessing pay information remotely.

Future Enhancements and Scalability

Although the existing system has already produced notable advantages, its deployment has paved the way for further improvements and scalability. The adaptability of the architecture enables the introduction of extra features like automated tax filings, employee benefits management, and performance-based bonuses. Because of the system's scalability, it can expand with the business and adapt to changing HR needs without requiring extensive changes.

In the pursuit of continuous improvement,

Telesom Company is poised to leverage the system's success as a foundation for future enhancements. By capitalizing on these organizational benefits and strategically;

Planning future enhancements, the company is well-positioned to further optimize its payroll processes, enhance employee experiences, and maintain its competitive edge in the industry. The subsequent section will provide an overview of the conclusions drawn from the study and its broader implications.

4.5.2 Future Enhancements

The successful implementation of the Web-Based Payroll Management System at Telesom Company marks a significant milestone in enhancing payroll efficiency and employee satisfaction. As the system establishes a robust foundation, there are several avenues for future enhancements that can further elevate the capabilities and benefits of the system.

Integration with HRIS and Financial Systems

The seamless integration of the Web-Based Payroll Management System with the business's financial and human resources information systems (HRIS) is one of the main paths for future improvements. A unified ecosystem would result from this integration, making it possible to synchronize personnel data, speed reporting, and improve data accuracy. These systems' interconnectedness would allow for quick updates to employee data and further automate data interchange, lowering duplication and enhancing overall data integrity.

Advanced Analytics and Reporting

Future improvements might involve giving the system access to sophisticated analytics and reporting tools.

The system could offer insights into payroll trends, patterns, and expense estimates by utilizing data analytics technologies. Customizable dashboards and reports may provide HR and financial departments with useful information for making strategic decisions. Improved reporting capabilities may also make it easier to comply with legal obligations and provide a thorough picture of the company's payroll environment.

Mobile Accessibility and Employee Self-Service

Expanding the system's accessibility to mobile devices and creating an employee self-service portal could be a valuable future enhancement. Employees could simply access their payroll information, make modifications, and submit requests using their smartphones or tablets if the system was mobile-friendly. Employees might be given the freedom to independently manage their personal information, examine pay stubs, and obtain tax papers through an employee self-service portal. The administrative burden on HR staff would decrease and employee engagement would be further increased.

Automated Tax Filings and Compliance

Telesom Company might save a lot of time and resources by integrating automated tax filing and compliance tools into the system. The system may produce tax forms, make tax withholding calculations, and ensure compliance with changing tax laws. This improvement would lessen the administrative strain involved with tasks related to taxes while also lowering the likelihood of errors occurring in tax calculations.

Multi-Language and Global Capabilities

Considering Telesom Company's global presence, future enhancements could focus on introducing multi-language support and global payroll capabilities. The system might support numerous languages, making it accessible and convenient for workers from various geographical areas. Additionally, by addressing various regulatory frameworks and payroll needs, global payroll capabilities may make it possible to manage payroll operations for workers that are located abroad.

Enhanced Security Measures

As data security remains a paramount concern, future enhancements could strengthen the system's security measures. Sensitive payroll data would be further protected by putting modern encryption mechanisms, multi-factor authentication, and data access limits in place. The system might be made to remain resilient against changing cybersecurity threats with frequent security assessments and updates.

Figure 3.Prototype Development

4.6 Result

4.6.1 High-Fidelity Design & Prototyping
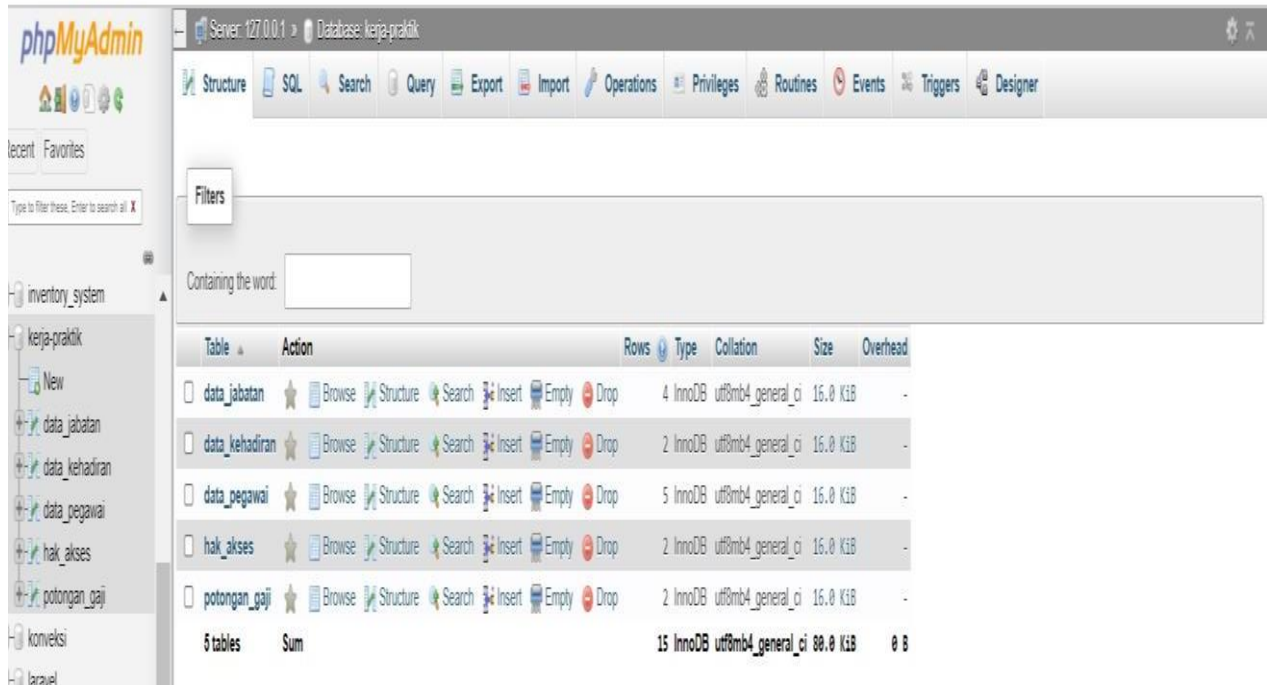
The next stage of developing the Telesom payroll web app after building the design system is to make a high-fidelity design of each page that has been roughly described in a wireframe, to then be translated into a final design using components that have been made previously into a component. After becoming a high-fidelity design, each existing design page is animated offline as an application description which can be accessed at http://localhost/payroll-Telesom/. In total there are many pages that can be accessed by employee which will be attached below.

4.6.2 Database Implementation

Database is a representation of a collection of interconnected data that is organized and stored together. Data needs to be stored, processed, and organized in a database so that the resulting information is of high quality and efficient in data storage. Organizing data like this is called a Database Management System (DBMS). Database Management System is software that functions to manage databases.

The database is made up of two words: base and data. Base can also be interpreted as a warehouse or headquarters, a nesting or gathering location. Data is a representation of real-world facts that represent an object such as humans (students, employees, and customers), animals, goods, events, situations, concepts, and so on, and is recorded in the form of letters, symbols, text, numbers, images, sounds, or some other combination of these.

4.6.3 Database Structure

Figure 4.Database Structure

4.6.4 Website Page Implementation

        1. Home Page
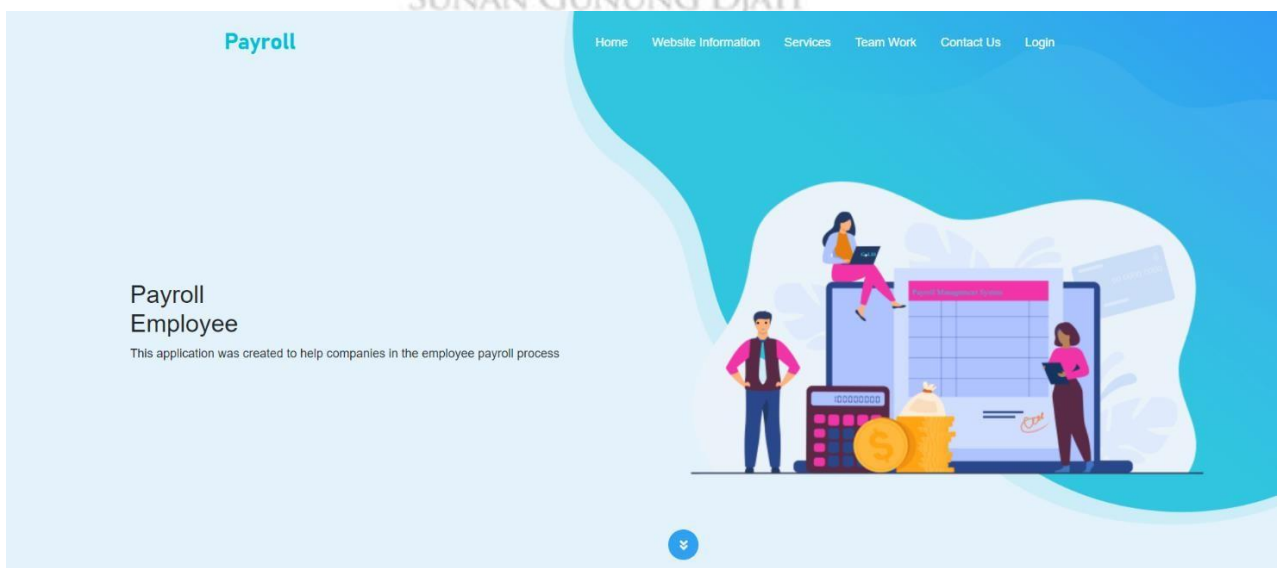
Figure 5. Home page

There is an initial appearance that we will be faced with on the main page of this website, there is also a remark "Welcome to Graha Pena Surabaya Building" which is the name of the building where Jawa Pos employees do their activities every day.

Then click, Login

Payroll Employee
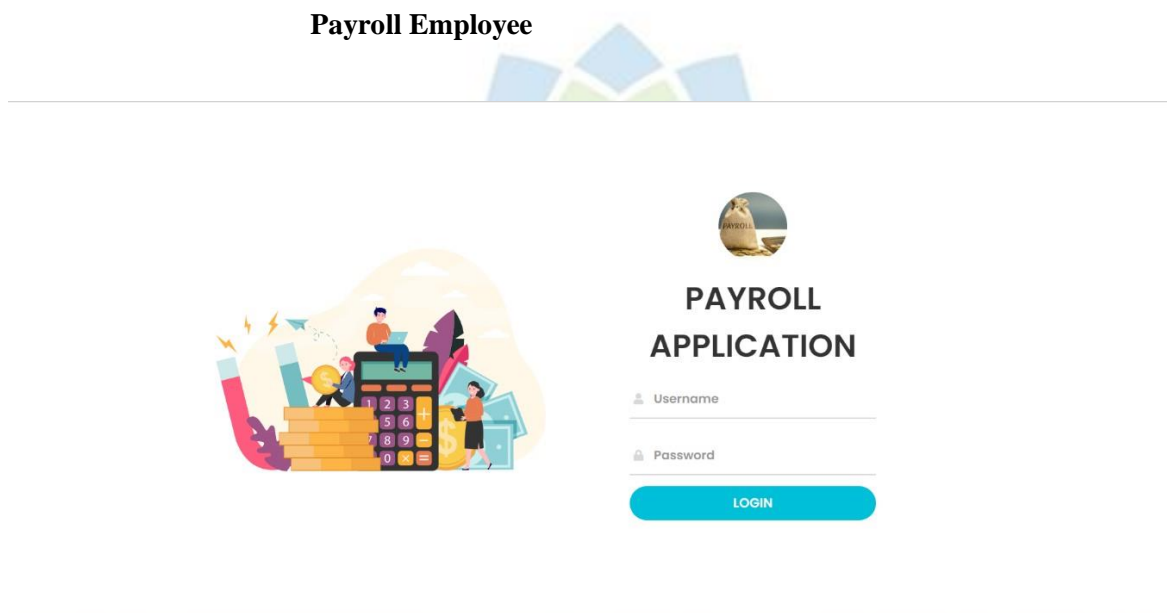
Figure 6.Login Page

Employee who come directly go to the duty officer so they can record the identity of any visitors who come, by using his/her identities roll-number, such as:

- E-mail
- Username
- Password

Once login the identification roll-number has been filled in, the officer will click, done or login. Automatically the data will be entered into the table that is already available. And there will be information that the data was successfully input.

You may encounter if password is wrong it says your username or password is wrong if not either it will successfully login employee dashboard or admin dashboard.

2. **Data master page**

Figure 7.Data master Page

You may be able to see two feature sections such as Employee Data and Position Data.
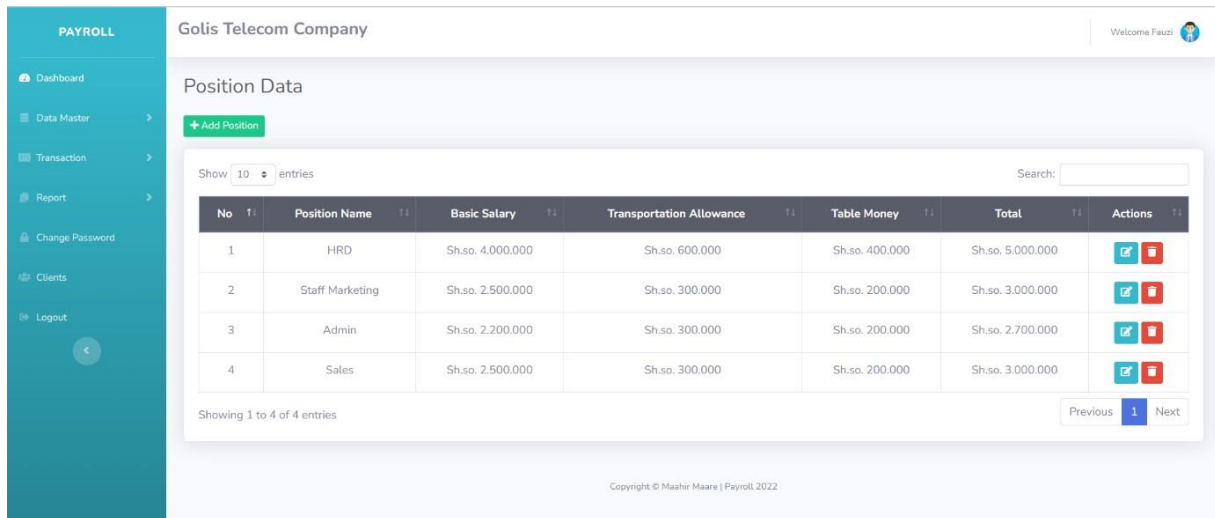
- Employee data such as:
- NIN
- Employee Name
- Gender
- Position
- Date of Entry
- Status
- Access Rights
- Profile photo
- Action (CRUD)

3. **Position Data**

Figure 8.Position Data Page

In Position Data you may able to see features such as:

- Position Name
- Basic Salary
- Transportation Allowance
- Table money
- Total
- CRUD

4. **Transactions page**

This page has more features such as

Salary Deduction Settings

- Salary Pay cuts
- Total Pay cuts
- CRUD

Figure 9. Transaction Page

Attendance Data

Figure 10.Attendance Data

Employee Data Salary

Figure 11. Employee Data Salary Page